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| IN THE MATTER OF THE GENERAL INVESTIGATION OF NET METERING FOR POTENTIAL RULES CONSIDERATION. | DOCKET NO. RE-00000A-07-0608<br><br>**JOINT COMMENTS OF TUCSON ELECTRIC POWER COMPANY AND UNS ELECTRIC, INC.** |

Tucson Electric Power Company ("TEP") and UNS Electric, Inc. ("UNS Electric") (collectively, "UniSource Energy"), through undersigned counsel, hereby submit Joint Comments ("Comments"), responding to the Arizona Corporation Commission's ("Commission") Staff's memorandum and proposed rulemaking regarding Net Metering .

## I. INTRODUCTION.

Commission Staff filed the most recent draft of the Proposed Net Metering Rules ("Proposed Rules") on February 25, 2008. Staff has recommended that the Proposed Rules be forwarded to the Secretary of State for Notice of proposed Rulemaking. UniSource Energy has filed comments regarding the Proposed Rules on several occasions; however, UniSource Energy continues to have concerns on certain aspects of the Proposed Rules that have not been addressed in the Staff memorandum. UniSource Energy's continuing concerns are set forth in the exceptions below. UniSource Energy has also provided proposed revisions to the current draft of the Proposed Rules (Attachment A hereto is a redline version) that would ameliorate its concerns.

TEP was the first Arizona utility to voluntarily offer a net metering program to its customers in the year 2000 and currently has over 500 customers provided with net metering service. UniSource Energy initiated offering net metering service, and continues to support the concept of net

metering, as a financial incentive for development of renewable distributed generation by its customers. However, UniSource Energy also recognizes through its experience with net metering that there are both direct and indirect costs to the implementation of net metering. Those costs increase as the number of customers eligible for net metering service increase and as the amount of annual electric energy generated through net metering service by customers increases. The Proposed Rules allow for recovery of the expenses of a net metering program in a timely manner through the Net Metering Tariff which would provide for the recovery of the true cost of a net metering program only from those UniSource Energy customers taking net metering service in an open and transparent process, which UniSource Energy believes is in the public interest.

## II. NET METERING CONCERNS.

Net Metering is a super-subsidy; it provides an extra financial incentive for installation of customer-sited distributed generation. However, Net Metering is not necessary for the success of distributed renewable energy. On the contrary, two of the most successful national distributed solar energy development programs have been in Germany and Japan, neither of which have a net metering program. Although UniSource Energy appreciates the incorporation of several of the suggested revisions made by Staff in the Proposed Rules, UniSource Energy still has a few concerns with the Proposed Rules.

First, UniSource Energy continues to express its concern about the potential impact of section R-14-2-2302.M.4 allowing a net metered generating facility to install generation capacity up to 125% of "total connected load" and section R14-2-2303.B allowing a net metered generating facility to install generation capacity up to 125% of "peak demand". As noted in the Net Metering Staff Report, many types of distributed generation are not dispatchable and there will eventually be a need for a limit on total distributed generation in order to maintain system reliability. The limit can be reached through a small number of large systems or a large number of small systems. The Staff Report accompanying the original Draft Rules notes on page 2 that customers will use Net Metering for "... essentially storing excess power on the grid...". This is a new role for electric utilities, one for which their assets are generally not suited. At some point, as customer sited self-generation

capacity reaches some future yet-to-be-determined threshold, utilities will need to install real energy storage assets, at some tangible non-zero cost, to manage the energy storage demands imposed by self-generation net metered customers. Thus, for the reasons delineated above, and to more closely align distribution system sizing with distributed generation sizing, UniSource Energy continues to suggest that 100% be used instead of 125% of peak demand when determining the maximum generation capacity to qualify for net metering service. Additionally, the Proposed Rules include new changes to section R-14-2-2302.M.4 incorporating language using "total connected load" as a qualifying criteria, discarded from the draft net metering rule definition version issued December 17, 2007. Total connected load is a number difficult to determine with any precision for many customers. Consequently, that language was changed to "peak demand" in the net metering rule definition version issued February 1, 2008. This latest language change creates a discrepancy between the language of section R-14-2-2302.M.4 and the language of section R-14-2-2303.B. We have supplied recommended language for the Proposed Rules based on "peak demand", which provides for consistency between the two sections, and in the absence of customer load data the maximum net metering facility capacity would be equal to the customer's electric service drop capacity.

Second, UniSource Energy continues to express its concern that the definition of Combined Heat and Power ("CHP") in the Draft Rules will provide incentives for distributed generation from resources that are not qualified as renewable energy sources. These grid-connected CHP generators could prevent renewable energy resources from interconnection due to the necessary limitation on total distributed generation interconnection that is driven by reliability concerns. This effect would interfere with a utility's ability to meet its Renewable Energy Standard and Tariff ("REST") annual distributed renewable energy requirements. UniSource Energy proposes language consistent with the intent of the REST Rules to restrict net metered CHP to sources using renewable resources. Also, given that the benefits of CHP in reducing societal consumption of fuels is derived from its ability to increase the efficiency of fuel utilization, UniSource Energy continues to propose that the PURPA

efficiency and useful heat definitions of a Qualified Facility be applied to qualification for net metering service.

Third, UniSource Energy is concerned that, although Time-of-Use ("TOU") Net Metering can technically be implemented, the cost could be very expensive using existing available technology. As smart metering systems are implemented service territory wide, the cost of TOU Net Metering equipment and monthly reading will decline. UniSource Energy suggests no language changes at this time, but UniSource Energy's proposed Net Metering tariffs will reflect commercially available metering technology for TOU Net Metering at the time the tariffs are presented. In addition, the implementation of TOU Net Metering in customer billing systems, while again technically possible, will involve very significant expense as those information processing systems will need to be programmed to support a billing concept they were not designed to process. These expenses are a one-time expense and will need to be recovered through an accounting order approved by the Commission at the time of the approval of the utility's Net Metering tariff. Finally, the question of excess credit carryover of TOU summer credits into winter and vice versa with dissimilar values will need to be addressed in the Net Metering tariffs.

Fourth, UniSource Energy continues to be concerned that the provisions of the proposed section R14-2-2308.B to report "monthly peak demand delivered to and from the Electric Utility" will significantly increase the cost of Net Metering service to customers with little, if any, benefit from the data thus created. UniSource Energy, in an initial search, found what appears to be the lowest cost meter that will support the reporting requirements of this Proposed Rule section: an Itron model Sentinel with Level 1, TOU and Bi-Directional trim, Trilliant Module and 48KB of memory. This meter can be purchased for $942.48 each in quantities of 1000. To outfit our existing net metering customers with this meter would require an expenditure of nearly $500,000 just for the meters. This meter is significantly more costly than a bi-directional, communicating energy recording meter available for about $50.00 which is currently used for our net metering customers. Use of demand meters also requires reset after reading-- generally a manual reset -- requiring additional expenses to be charged to the Net Metering program. The Net Metering Staff Report does

not mention demand recording, nor does section R14-2-2304 – Metering reference any demand registers for the Net Metering meters. Given that the nameplate generation capacity of the Net Metering Facility will be reported under the Proposed Rules, sufficient information would be available to determine connected distributed generation capacity. Without recording of coincident demand information and time stamped demand data – for multiple high demand periods in a month – demand data is not of any real use in determining the value of distributed generation to a utility. Over time, as smart meter technology is implemented, this additional information would become available and could be added to reporting requirements at a reasonable cost. To implement monthly peak demand reporting at this time, however, will result in a high cost of entry for potential Net Metering customers and a high cost of administration in developing the reports, with small benefit beyond that provided by the nameplate generation capacity data reported in section R14-2-2308.A. Thus, UniSource Energy proposes this language change in reporting requirements of the Proposed Rules.

Finally, UniSource Energy continues to generally support the proposed excess annual credits language in section R14-2-2306.G, albeit with some reservation. If the aggregate excess credit value is a significant amount, a utility will be required to report the accrued liability associated with the value of the excess credits on a quarterly basis. This will require one-time programming changes to the customer billing system and the recovery of this expense should be provided for through an accounting order issued as part of the Net Metering tariff proposed by the utility and approved by the Commission.

## III. SUGGESTED CHANGES TO THE PROPOSED RULES.

As discussed above, UniSource Energy recommends the following changes to the Proposed Rules. These suggested changes are redlined in Attachment A, attached hereto and incorporated herein by reference.

A. Section R14-2-2302.D – Combined Heat and Power. This change adds renewable fuel use and qualification to PURPA efficiency and useful heat production standards to reduce the opportunity for inefficient CHP systems for qualification for Net Metering

service. This change in the definition more closely aligns the Proposed Rules with the Commission approved REST Rules.

B. Section R14-2-2302.M.4 – Net Metering Facility. This changes the proposed 125% of the "total connected load", a number difficult to determine with any precision for most customers, to 100% of "peak demand" and in the absence of customer load data, the maximum net metering facility capacity would be equal to the customer's electric service drop capacity for better alignment of customer distributed generation sizing with utility distribution system sizing and consistency with the language of section R-14-2-2303.B.

C. Section R14-2-2303.B – Requirements and Eligibility. This changes the 125% to 100% of peak demand as noted above to more accurately align the sizing of customer distributed generation with the sizing of the utility distribution system.

D. Section R14-2-2308.B – Filing and Reporting Requirements. UniSource Energy strongly suggests removal of: "the monthly peak demand delivered to and from the Electric Utility and" in the first line of this section.

RESPECTFULLY SUBMITTED this 6th day of March, 2008.

TUCSON ELECTRIC POWER COMPANY
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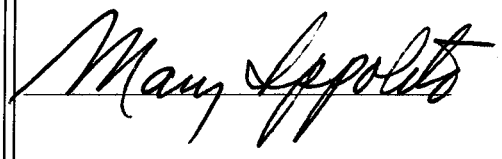

**Attachment A**

ATTACHMENT
Proposed Net Metering Rules

ARTICLE 23. NET METERING

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|---|---|
| R14-2-2301. | Applicability |
| Rl4-2-2302. | Definitions |
| Rl4-2-2303. | Requirements and Eligibility |
| R14-2-2304. | Metering |
| R14-2-2305. | New or Additional Charges |
| R14-2-2306. | Billing for Net Metering |
| R14-2-2307. | Net Metering Tariff |
| R14-2-2308. | Filing and Reporting Requirements |

**Attachment A**

TITLE 14. PUBLIC SERVICE CORPORATIONS; CORPORATIONS AND ASSOCIATIONS; SECURITIES REGULATION

CHAPTER 2. CORPORATION COMMISSION – FIXED UTILITIES

ARTICLE 23. NET METERING

**R14-2-2301. Applicability**

These Rules govern the treatment of Electric Utility Customers in Arizona who wish to interconnect with the Electric Utility which serves them and engage in Net Metering operation as defined below. These Rules apply to all Electric Utilities, as defined in these Rules.

**R14-2-2302. Definitions**

For purposes of this Article, the following definitions apply unless the context requires otherwise:

A. "Avoided Costs" means the incremental costs to an Electric Utility for electric energy or capacity or both which, but for the purchase from the net metering facility, such utility would generate itself or purchase from another source.

B. "Biomass" means any raw or processed plant-derived organic matter available on a renewable basis, including dedicated energy crops and trees; agricultural food and feed crops; agricultural crop wastes and residues; wood wastes and residues, including landscape waste, right of way tree trimmings, or small diameter forest thinnings that are 12" in diameter or less; dead and downed forest products; aquatic plants; animal wastes; other vegetative waste materials; non-hazardous plant matter waste material that is segregated from other waste; forest related resources such as harvesting and mill residue, pre-commercial thinnings, slash and brush; miscellaneous waste, such as waste pellets, crates and dunnage; or recycled paper fibers that are no longer suitable for recycled paper production, but not including painted, treated or pressurized wood, wood contaminated with plastics or metals, tires or recyclable post-consumer waste paper.

C. "Biogas" means gases that are derived from plant-derived organic matter, agricultural food and feed matter, wood wastes, aquatic plants, animal wastes, vegetative wastes or waste water treatment facilities using anaerobic digestion or from municipal solid waste through a digester process, an oxidation process or other gasification process.

D. "Combined Heat and Power" or "CHP" (also known as cogeneration) means a system that is fueled by Renewable Resources and generates electricity and useful thermal energy in a single, integrated system. Qualifying CHP systems shall meet all PURPA efficiency and effective utilization of heat production standards for a Qualifying Facility (QF) certification.

E. "Commission" means the Arizona Corporation Commission.

F. "Electric Utility" or "Utility" means an electric distribution company that constructs, operates, and maintains the electrical distribution system for the receipt and/or delivery of power.

G. "Electric Utility Customer" or "Customer" means an end-use retail Customer served under a Utility's rate schedule.

H. "Fuel Cell" means a device that converts the chemical energy of a fuel directly into electricity without intermediate combustion or thermal cycles. For purposes of these Net Metering rules, the source of the chemical reaction must be derived from Renewable Resources.

I. "Geothermal" means heat from within the earth's surface.

J. "Hydroelectric" means the kinetic energy derived from moving water.

K. "Net Metering" means service to an Electric Utility Customer under which electric energy generated by or on behalf of that Electric Utility Customer from a Net Metering Facility and delivered to the Utility's local distribution facilities may be used to offset electric energy provided by the Electric Utility to the

Electric Utility Customer during the applicable billing period.

L. "Net Metering Customer" means any Arizona Customer who chooses to take electric service in the manner described in the definition of Net Metering above, and under the Net Metering tariff, as described in R14-2-2307.

M. "Net Metering Facility" means a facility for the production of electricity that:

1. Is operated by or on behalf of a Net Metering Customer and is located on the Net Metering Customer's premises.
2. Is intended primarily to provide part or all of the Net Metering Customer's requirements for electricity;
3. Uses Renewable Resources, a Fuel Cell, or CHP to generate electricity;
4. Has a generating capacity less than or equal to 100~~125~~% of the Net Metering Customer's peak demand~~total connected load~~, or in the absence of customer load data, a capacity less than or equal to the Customer's electric service drop capacity~~100 kW~~; and
5. Is interconnected with and can operate in parallel and in phase with an Electric Utility's existing distribution system.

N. "Renewable Resources" means natural resources that can be replenished rapidly by natural processes. Renewable Resources include Biogas, Biomass, Geothermal, Hydroelectric, Solar, or Wind.

O. "Solar" means solar radiation of the Earth's Sun that produces electricity from a device or system designed for that purpose..

P. "Wind" means energy derived from wind movement across the Earth's surface that produces electricity from a device or system designed for that purpose.

**R14-2-2303. Requirements and Eligibility**

A. An Electric Utility shall interconnect with any retail Customer who operates a Net Metering Facility in the Electric Utility's service territory.

B. Facilities with a generating capability greater than 100~~125~~% of the customer's peak demand shall require a special contract between the Utility and the Customer.

**Rl4-2-2304. Metering**

If the meter that is currently installed on the Net Metering Facility is incapable of registering and accumulating the kilowatt-hours ("kWh") of electricity flowing in both directions in each billing period, a bi-directional meter with that capability shall be installed by the Electric Utility to record the kWh of electricity in both directions.

**Rl4-2-2305. New or Additional Charges**

A. Any proposed charge that would increase a Net Metering Customer's costs beyond those of other customers in the same rate class shall be filed by the Electric Utility with the Commission for approval. The filings shall be supported with cost of service studies and benefit/cost analyses.

B. Net Metering costs shall be assessed on a nondiscriminatory basis with respect to other customers with similar load characteristics.

**R14-2-2306. Billing for Net Metering**

A. On a monthly basis, the Net Metering Customer shall be billed or credited based upon the rates applicable under the Customer's currently effective standard rate schedule and any appropriate rider schedules.

B. The billing period for net metering will be the same as the billing period under the Customer's applicable standard rate schedule.

C. If the kWh supplied by the Electric Utility exceed the kWh that are generated by the Net Metering Facility and delivered back to the Electric Utility during the Billing Period, the Customer shall be billed for the net

kWh supplied by the Electric Utility in accordance with the rates and charges under the Customer's standard rate schedule.

D. If the electricity generated by the Net Metering Customer exceeds the electricity supplied by the Electric Utility in the Billing Period, the Customer shall be credited during the next Billing Period for the excess kWh generated. That is, the excess kWh during the Billing Period will be used to reduce the kWh supplied (not kW or kVA demand or customer charges) and billed by the Electric Utility during the following Billing Period.

F. Customers taking service under time-of-use rates who are to receive credit in a subsequent Billing Period for excess kWh generated shall receive such credit during the next Billing Period during the on- or off-peak periods corresponding to the on- or off-peak periods in which the kWh were generated by the Customer.

G. Once each calendar year the Electric Utility shall issue a check or billing credit to the Net Metering Customer for the balance of any credit due in excess of amounts owed by the Customer to the Electric Utility. The payment for any remaining credits shall be at the Electric Utility's Avoided Cost. That Avoided Cost shall be clearly identified in the Electric Utility's Net Metering tariff

**R14-2-2307. Net Metering Tariff**

A. Each Electric Utility shall file, for approval by the Commission, a Net Metering tariff within 120 days from the effective date of these rules, including financial information and supporting data sufficient to allow the Commission to determine the Electric Utility's fair value for the purposes of evaluating any specific proposed charges. The Commission shall issue a decision on these filings within 120 days.

B. The Net Metering tariff shall specify standard rates for annual purchases of remaining credits from Net Metering facilities and may specify total capacity limits. If capacity limits are included in the Tariff, such limits must be fully justified using appropriate loads and resources data.

C. Electric utilities may include seasonally and time of day differentiated avoided cost rates for purchases from Net Metering Customers, to the extent that Avoided Costs vary by season and time of day.

**R14-2-2308. Filing and Reporting Requirements**

A. Prior to May 1 of each year, each Electric Utility shall file a report listing all existing Net Metering Facilities and the inverter power rating or generator rating as of the end of the previous calendar year.

B. Also included in this report shall be, for each existing Net Metering Facility, ~~the monthly peak demand delivered to and from the Electric Utility and~~ the monthly amount of energy delivered to and from the Utility.